QC ABSTRACT

NAME OF WORK: Improvements to Storm Water Drains in Ward No 5 Jakkur

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
		Materials				
1	Cement	Fineness by dry sieving	One Test		1	1
		Finess by Air permeablity method	One Test		1	1
		Density	One Test		1	1
		Standard Consistency	One Test		1	1
		Initial Setting time	One Test		1	1
		Final Setting time	One Test		1	1
		Soundness (Le Chatelier's Method)	One Test		1	1
		Compressive Strength	One Test		1	1
2	Coarse aggregate(40 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
3	Coarse aggregate(20 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
		Aggregate crushing Value	One Test		1	1
		Aggregate Impact Value	One Test		1	1
4	Fine aggregate	SIEVE ANALYSIS	One Test		1	1
		Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		Material finer than 75 micron	One Test		1	1
5	Steel	Bend test	One Test		1	1
		Tensile Test	One Test		1	1
		Yield Test	One Test		1	1
		ReBend test	One Test		1	1
6	RCC(M20)	Compressive Strength(7days and 28days)	5 set /51-100 cum	62.98	10	10

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Date: 07-09-20

Lab ID	:	**CP-2020-11-02-04**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Storm Water Drains in Ward No 5 Jakkur
Agency	:	Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24
Customer's Reference	:	BBMP/EE/BTP/WO/92/2020-21
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	04-09-20
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	05-09-20
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	1.94	–
2	Finess by Air permeablity method (m^2/kg,Min)	285.3	225m^2/kg, Min
3	Density (gm/cc)	3.14	–
4	Standard Consistency (%)	29.5%	Not specified
5	Initial Setting time	150 minutes	Not less than 30 minutes
6	Final Setting time	245 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

* The results obtained are satisfactory as per standard requirements.

Note:

The results pertain to the samples received and tested.

All information furnished by Customer/Representative

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Date: 03-10-20

Lab ID	:	**CP-2020-11-02-04**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Storm Water Drains in Ward No 5 Jakkur
Agency	:	Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24
Customer's Reference	:	BBMP/EE/BTP/WO/92/2020-21
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	04-09-20
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	05-09-20
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	28.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.0N/mm^2	Not less than 37 N/mm^2
3	28 Days	58.5N/mm^2	Not less than 53 N/mm^2

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TEST REPORT ON COARSE AGGREGATES

Date: 07-09-20

Lab ID	:	CP-2020-11-02-04
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Storm Water Drains in Ward No 5 Jakkur
Agency	:	Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24
Customer's Reference	:	BBMP/EE/BTP/WO/92/2020-21
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	04-09-20
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	04-09-20

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	254	254	1.7	98.3	90-100
3	20 mm	5422	5676	37.8	62.2	30-70
4	10 mm	4132	9808	65.4	34.6	10-35
5	4.75 mm	4854	14662	97.7	2.3	0-5
6	Pan	338	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2020-11-02-04** **Date: 07-09-20**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	12.4	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.8	
3	Specific Gravity	2.68	_
4	Bulk Density(Loose) (Kg/l)	1.48	_
5	Bulk Density(Compacted) (Kg/l)	1.52	_
6	Water Absorption(%)	0.22	_

* The results obtained are satisfactory as per standard requirements.

Note:

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Quality Manager

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TEST RESULTS OF STEEL

Lab ID : **CP-2020-11-02-04** **Date: 06-09-20**

Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

Address : Byatarayanapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Storm Water Drains in Ward No 5 Jakkur

Agency : Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24

Customer's Reference : BBMP/EE/BTP/WO/92/2020-21

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 04-09-20

Sample Type : Sunvik

Reference to BIS codes : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2012.

Date of test: : 05-09-20

Sl.No	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm2)	(N/mm2)	(%)		
1	Sunvik	Fe500	8	0.391	512	652	20.0%	Satisfactory	Satisfactory
2	Sunvik	Fe500	10	0.616	528	672	20.0%	Satisfactory	Satisfactory
3	Sunvik	Fe500	12	0.888	544	668	20.0%	Satisfactory	Satisfactory

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TEST REPORT OF CEMENT CONCRETE CUBES

Date: 19/09/2020

Lab ID	:	CP-2020-11-02-04
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Storm Water Drains in Ward No 5 Jakkur
Agency	:	Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24
Customer's Reference	:	BBMP/EE/BTP/WO/92/2020-21
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	14-09-20
Customer ID	:	Drain Bottom Slab Concrete
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 7 Days Compressive Strength
Reference to B&S codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
Date of test	:	19/09/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Bottom Slab Concrete	M20	12/09/2020	19/09/2020	151.73 X 151.88 X 150.57	23046	8.021	423.3	18.4	18.4
2	Drain Bottom Slab Concrete	M20	12/09/2020	19/09/2020	151.86 X 149.39 X 151.41	22686	8.446	421.3	18.6	
3	Drain Bottom Slab Concrete	M20	12/09/2020	19/09/2020	151.68 X 150.96 X 150.81	22897	8.708	419.0	18.3	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2020-11-02-04** **Date: 10/10/2020**

Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

Address : Byatarayanapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Storm Water Drains in Ward No 5 Jakkur

Agency : Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24

Customer's Reference : BBMP/EE/BTP/WO/92/2020-21

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 14-09-20

Customer ID : Drain Bottom Slab Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 10/10/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Bottom Slab Concrete	M20	12/09/2020	10/10/2020	151.25 X 149.78 X 149.99	22654	**8.121**	540.6	23.9	23.5
2	Drain Bottom Slab Concrete	M20	12/09/2020	10/10/2020	151.36 X 150.01 X 150.68	22705	**8.215**	517.0	22.8	
3	Drain Bottom Slab Concrete	M20	12/09/2020	10/10/2020	150.07 X 149.49 X 151.47	22434	**8.532**	535.6	23.9	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2020-11-02-04 **Date: 19/09/2020**

Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

Address : Byatarayanapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Storm Water Drains in Ward No 5 Jakkur

Agency : Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24

Customer's Reference : BBMP/EE/BTP/WO/92/2020-21

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 14-09-20

Customer ID : Drain Bottom Slab Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 19/09/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Bottom Slab Concrete	M20	12/09/2020	19/09/2020	151.36 X 150.24 X 151.57	22741	8.021	421.9	18.6	18.6
2	Drain Bottom Slab Concrete	M20	12/09/2020	19/09/2020	149.10 X 151.59 X 149.60	22602	8.446	425.0	18.8	
3	Drain Bottom Slab Concrete	M20	12/09/2020	19/09/2020	150.94 X 151.24 X 151.53	22828	8.708	421.5	18.5	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2020-11-02-04** **Date: 10/10/2020**

Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

Address : Byatarayanapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Storm Water Drains in Ward No 5 Jakkur

Agency : Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24

Customer's Reference : BBMP/EE/BTP/WO/92/2020-21

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 14-09-20

Customer ID : Drain Bottom Slab Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 10/10/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Bottom Slab Concrete	M20	12/09/2020	10/10/2020	150.15 X 149.31 X 151.17	22419	**8.121**	536.0	23.9	23.4
2	Drain Bottom Slab Concrete	M20	12/09/2020	10/10/2020	151.67 X 151.16 X 150.15	22927	**8.215**	512.7	22.4	
3	Drain Bottom Slab Concrete	M20	12/09/2020	10/10/2020	149.02 X 149.91 X 151.53	22340	**8.532**	533.2	23.9	

• The results obtained are satisfactory as per standard requirements.

Note:

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TEST REPORT OF CEMENT CONCRETE CUBES

Date: 22/09/2020

Lab ID	:	**CP-2020-11-02-04**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Storm Water Drains in Ward No 5 Jakkur
Agency	:	Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24
Customer's Reference	:	BBMP/EE/BTP/WO/92/2020-21
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	18-09-20
Customer ID	:	Drain Side Wall Concrete
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 7 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
Date of test	:	22/09/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Side Wall Concrete	M20	15/09/2020	22/09/2020	149.11 X 150.34 X 150.84	22417	8.021	423.8	18.9	18.7
2	Drain Side Wall Concrete	M20	15/09/2020	22/09/2020	150.33 X 150.99 X 149.75	22699	8.446	412.4	18.2	
3	Drain Side Wall Concrete	M20	15/09/2020	22/09/2020	151.89 X 150.93 X 149.34	22925	8.708	435.0	19.0	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2020-11-02-04 Date: 13/10/2020

Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

Address : Byatarayanapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Storm Water Drains in Ward No 5 Jakkur

Agency : Sri. Madhu Gowda H A, S/O. M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24

Customer's Reference : BBMP/EE/BTP/WO/92/2020-21

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 18-09-20

Customer ID : Drain Side Wall Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete CL5

Date of test : 13/10/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm²)	Average Compressive Strength (N/mm²)
1	Drain Side Wall Concrete	M20	15/09/2020	13/10/2020	150.44 X 150.27 X 150.55	22607	8.121	539.8	23.9	23.3
2	Drain Side Wall Concrete	M20	15/09/2020	13/10/2020	151.79 X 151.17 X 149.33	22946	8.215	519.6	22.6	
3	Drain Side Wall Concrete	M20	15/09/2020	13/10/2020	151.12 X 150.93 X 149.25	22808	8.532	532.3	23.3	

* The results obtained are satisfactory as per standard requirements.

Note:
The results pertain to the samples received and tested.
All information furnished by Customer Representative
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Quality Manager

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Date: 22/09/2020

Lab ID	:	**CP-2020-11-02-04**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Storm Water Drains in Ward No 5 Jakkur
Agency	:	Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24
Customer's Reference	:	BBMP/EE/BTP/WO/92/2020-21
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	18-09-20
Customer ID	:	Drain Side Wall Concrete
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 7 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
Date of test	:	22/09/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm²)	Average Compressive Strength (N/mm²)
1	Drain Side Wall Concrete	M20	15/09/2020	22/09/2020	150.41 X 150.60 X 151.38	22653	8.021	429.6	19.0	18.5
2	Drain Side Wall Concrete	M20	15/09/2020	22/09/2020	149.52 X 150.73 X 151.91	22538	8.446	412.8	18.3	
3	Drain Side Wall Concrete	M20	15/09/2020	22/09/2020	151.53 X 150.07 X 149.09	22739	8.708	412.1	18.1	

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID	:	CP-2020-11-02-04 **Date: 13/10/2020**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Storm Water Drains in Ward No 5 Jakkur
Agency	:	Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24
Customer's Reference	:	BBMP/EE/BTP/WO/92/2020-21
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	18-09-20
Customer ID	:	Drain Side Wall Concrete
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 28 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
Date of test	:	13/10/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Side Wall Concrete	M20	15/09/2020	13/10/2020	151.31 X 149.28 X 151.56	22587	8.121	535.8	23.7	23.1
2	Drain Side Wall Concrete	M20	15/09/2020	13/10/2020	150.34 X 150.65 X 151.09	22649	8.215	498.8	22.0	
3	Drain Side Wall Concrete	M20	15/09/2020	13/10/2020	149.52 X 151.42 X 151.54	22640	8.532	531.0	23.5	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID	:	**CP-2020-11-02-04** **Date: 22/09/2020**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Storm Water Drains in Ward No 5 Jakkur
Agency	:	Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24
Customer's Reference	:	BBMP/EE/BTP/WO/92/2020-21
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	18-09-20
Customer ID	:	Drain Side Wall Concrete
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 7 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5
Date of test	:	22/09/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Side Wall Concrete	M20	15/09/2020	22/09/2020	151.20 X 150.83 X 150.11	22806	8.021	420.6	18.4	18.6
2	Drain Side Wall Concrete	M20	15/09/2020	22/09/2020	151.63 X 150.69 X 150.95	22848	8.446	432.6	18.9	
3	Drain Side Wall Concrete	M20	15/09/2020	22/09/2020	150.28 X 149.83 X 151.59	22516	8.708	417.2	18.5	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2020-11-02-04** **Date: 13/10/2020**

Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

Address : Byatarayanapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Storm Water Drains in Ward No 5 Jakkur

Agency : Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24

Customer's Reference : BBMP/EE/BTP/WO/92/2020-21

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 18-09-20

Customer ID : Drain Side Wall Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 13/10/2020

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Side Wall Concrete	M20	15/09/2020	13/10/2020	150.21 X 149.01 X 149.94	22383	8.121	521.1	23.3	22.9
2	Drain Side Wall Concrete	M20	15/09/2020	13/10/2020	149.01 X 149.99 X 151.87	22351	8.215	497.5	22.3	
3	Drain Side Wall Concrete	M20	15/09/2020	13/10/2020	149.72 X 150.85 X 150.90	22585	8.532	525.7	23.3	

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2020-11-02-04** **Date: 07-09-20**
Customer	:	Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.
Address	:	Byatarayanapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Storm Water Drains in Ward No 5 Jakkur
Agency	:	Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24
Customer Reference	:	BBMP/EE/BTP/WO/92/2020-21
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	04-09-20
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	04-09-20

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	235	235	4.7	95.3	90-100
3	10 mm	2470	2705	54.1	45.9	25-55
4	4.75 mm	2133	4838	96.8	3.2	0-10
5	Pan	162	5000	100	0	_

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TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2020-11-02-04 Date: 07-09-20

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	13.1	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.5	
3	Specific Gravity	2.67	–
4	Bulk Density(Loose) (Kg/l)	1.54	–
5	Bulk Density(Compacted) (Kg/l)	1.58	–
6	Water Absorption(%)	0.22	–
7	Aggregate crushing Value(%)	24.5	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	22.8	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2020-11-02-04** **Date: 07-09-20**

Customer : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

Address : Byatarayanapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Storm Water Drains in Ward No 5 Jakkur

Agency : Sri. Madhu Gowda H A, S/O, M Aswathnarayana, #09 Mathru Nilaya, 2nd Cross, S B Layout Hebbal, Bangalore North, H.A Farm, Bangalore-24

Customer's Reference : BBMP/EE/BTP/WO/92/2020-21

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 04-09-20

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

Date of test : 04-09-20

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	27	27	2.7	97.3	90-100	90-100	90-100	95-100
3	2.36 mm	55	82	8.2	91.8	60-95	75-100	85-100	95-100
4	1.18 mm	239	321	32.1	67.9	30-70	55-90	75-100	90-100
5	600 micron	205	526	52.6	47.4	15-34	35-59	60-79	80-100
6	300 micron	203	729	72.9	27.1	5-20	8-30	12-40	15-50
7	150 micron	191	920	92.0	8.0	0-10	0-10	0-10	0-15
8	Pan	80	1000	100.0	0.0	---	---	---	---
Result :The tested Sample Conforms to Grading Zone II									

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2020-11-02-04** **Date: 07-09-20**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.5	–
2	Specific Gravity	2.59	–
3	Material finer than 75 micron(%)	6.9	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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